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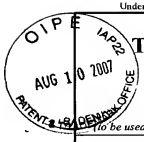

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/644,221
Filing Date	August 19, 2003
First Named Inventor	Hitoshi Nagaoka
Art Unit	1651
Examiner Name	Irene Marx
Attorney Docket Number	1217-031377

Total Number of Pages in This Submission

ENCLOSURES *(check all that apply)*

☐ Fee Transmittal Form	☐ Drawing(s)	☐ After Allowance Communication to TC
☐ Fee Attached	☐ Licensing-related Papers	☐ Appeal Communication to Board of Appeals and Interferences
☐ Amendment / Reply	☐ Petition	☒ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
☐ After Final	☐ Petition to Convert to a Provisional Application	☐ Proprietary Information
☐ Affidavits/declaration(s)	☐ Power of Attorney, Revocation Change of Correspondence Address	☐ Status Letter
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☐ Response to Missing Parts Under 37 CFR 1.52 or 1.53		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	The Webb Law Firm		
Signature	Barbara E. Johnson		
Printed Name	Barbara E. Johnson		
Date	August 8, 2007	Reg. No.	31,198

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application No.	:	10/644,221			
Appellant	:	Hitoshi Nagaoka			
Filed	:	August 19, 2003			
Title	:	INHIBITOR OF HEPATITIS B AND HIV ACTIVITY			
Group Art Unit	:	1651	Confirmation No.	:	6470
Examiner	:	Irene Marx	Customer No.	:	28289

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APPELLANT'S BRIEF UNDER 37 C.F.R. §41.37

Sir:

The present Appeal Brief is re-submitted in response to the Notification of Non-Compliant Appeal Brief dated July 23, 2007 and in support of the Notice of Appeal filed April 16, 2007, and received April 19, 2007 by the United States Patent and Trademark Office.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to MAIL STOP APPEAL BRIEF – PATENTS, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on August 8, 2007.

Florence P. Trevethan
(Name of Person Mailing Paper)

Florence P. Trevethan 08/08/2007
Signature Date

The headings used hereinafter and that which is set forth under each heading are in accordance with 37 C.F.R. §41.37(c).

I. REAL PARTY IN INTEREST

The real party in interest is Hitoshi Nagaoka.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to Appellant or Appellant's legal representative which will directly affect, or be directly affected by or have a bearing on a decision in the present Appeal.

III. STATUS OF CLAIMS

Claims 1-2 are pending in the present application and are the subject of this appeal. Claims 3-5 have been canceled and are not at issue in this Appeal.

Claims 1-2 stand finally rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

Claims 1-2 stand finally rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.

IV. STATUS OF AMENDMENTS

There are no unentered amendments to the claims of this application. A copy of the claims involved in this Appeal in their current form is contained in the Claims Appendix attached hereto.

V. SUMMARY OF CLAIMED INVENTION

A representative embodiment of the Appellant's invention is set forth in independent claim 1 of this application. The *Lentinus edodes* is inoculated in a solid culture medium comprising 90 parts by weight of bagasse and 10 parts by weight of rice bran to yield proliferated mycelium, as described in

Claim 1, section (a). The solid culture medium containing the proliferated mycelium is then disentangled so that the amount of the bagasse of 12-in mesh is not more than 30% by weight, followed by adding thereto 1 to 10 kg of water and 0.5 to 5 g of at least one enzyme selected from the group consisting of cellulase, protease and glucosidase based on 1 kg of the disentangled solid culture medium, while keeping the solid culture medium at 30 to 50°C, to give a bagasse-containing mixture (Claim 1, section (b)). Next, the bagasse-containing mixture is ground and milled so that the amount of the bagasse of 12-in mesh is not less than 70% by weight, and the ground and milled bagasse-containing mixture is then heated to a temperature of 75 to 95°C to inactivate the enzyme (Claim 1, sections (c)-(d)). The resultant mixture is then filtered through a filter cloth of 50 to 120-in mesh to obtain thereby a purified, concentrated pharmaceutical *Lentinus edodes* mycelium extract (Claim 1, section (e)). Finally, the at least one effective dose of the purified concentrated extract is administered orally to a human, and the extract weakens HIV activity and inhibits HIV proliferation in said human (Claim 1, section (f)).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claim 1 is indefinite under 35 U.S.C. §112, ¶2, for failing to particularly point out and distinctly claim whether "at least one effective dose" weakens HIV activity and inhibits HIV proliferation in said human, and what that effective dose is.

B. Whether the specification provides enablement under U.S.C. §112, ¶1, for the method of treating a human infected with HIV by orally administering at least one effective dose according to claims 1-2.

VII. ARGUMENT

A. *CLAIM 1 DISTINCTLY CLAIMS "AT LEAST ONE EFFECTIVE DOSE" AND THEREFORE AVOIDS INDEFINITENESS UNDER 35 U.S.C. §112, ¶2.*

Claims 1-2 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

a. *CLAIM 1 IS NOT VAGUE, INDEFINITE AND CONFUSING IN LACKING CLEAR ANTECEDENT BASIS FOR "SAID PURIFIED, CONCENTRATED EXTRACT" OR FOR "SAID EXTRACT" AT LINES 1-2 of (f).*

Claim 1 is not vague, indefinite and confusing in lacking clear antecedent basis for said "purified, concentrated extract" at lines 1-2 of (f) or for "said extract" at line 2 of (f). A lack of antecedent basis arises where the claim contains no earlier recitation or limitation or where it would be unclear as to what element the limitation was making reference. This is not the case in Claim 1.

Claim 1, as seen in the Claims Appendix, reflects the additions and deletions incorporated by the last entered Amendment dated July 13, 2006. In section (e) of Claim 1, the extract is introduced as a purified, concentrated pharmaceutical *Lentinus edodes* mycelium extract. In lines 1-2 of section (f) of Claim 1, Appellant correctly refers to the purified, concentrated pharmaceutical *Lentinus edodes* mycelium extract as "said extract." Because the claim contains an earlier recitation or limitation and it is clear as to what element the limitation was making reference, Claim 1 is not vague, indefinite and confusing in lacking clear antecedent basis.

b. THE CLAIM IS NOT AMBIGUOUS AS TO WHETHER THE AT LEAST ONE EFFECTIVE DOSE WEAKENS HIV ACTIVITY AND INHIBITS HIV PROLIFERATION IN SAID HUMAN.

In reviewing a claim for compliance with 35 U.S.C. §112, second paragraph, the Examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. §112, second paragraph, by providing clear warning to others as to what constitutes infringement of the patent. See, e.g., *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1379, 55 USPQ2d 1279, 1283 (Fed. Cir. 2000). In the present application, the *Lentinus edodes* infusion was previously known, as described in the specification at paragraph 7. The infusion was already known as a healthy drink and the amount and route of administration for the composition of the present invention was already known and appreciated in the prior art. Because the essence of the present invention is not in the preparation and general administration of the *Lentinus edodes* infusion, but, rather, the new and unexpected identification of the medical indications, notably, anti-HIV, the administration of the *Lentinus edodes* infusion has an indication-specific medicinal effect even when given according to prior art dosages and routes of administration.

To those skilled in the art, particularly those skilled in the art of the prior art of *Lentinus edodes* infusion, the effective dose is apparent from the present specification. The present specification gives very particular direction as to how to prepare the *Lentinus edodes* infusion (specification at paragraphs 20-28). The composition thus made is administered in beverage amounts, which, as a practical matter, involve a few to several ounces per administration, and such administration is described, for example at specification paragraphs 28-30. The "appropriate diluting" discussed in the specification does not refer to dosage

adjustment, but as in the case of other healthy drink type preparations, the claimed infusion can be diluted, or not, prior to consumption.

Because the "at least one effective dose" is not ambiguous to one of ordinary skill in the art, the rejection of claims 1-2 under 35 U.S.C. §112, ¶2, should be reversed.

B. THE APPLICATION AS ORIGINALLY FILED SUFFICIENTLY ENABLES THE INVENTION WITH RESPECT TO THE CLAIMED ONE EFFECTIVE DOSE TO SATISFY THE ENABLEMENT REQUIREMENT UNDER 35 U.S.C. §112, ¶1

Claims 1-2 are rejected under 35 U.S.C. §112, ¶1, for allegedly failing to comply with the enablement requirement. Claim 1 recites "administering orally at least one effective dose." The Office Action alleges that the specification, as originally filed, fails to provide enablement for such an effective dose. In particular, the Office Action contends that the claims are broadly drawn to a method of treating a human infected with HIV by orally administering at least one effective dose, without amounts and concentrations, and that the intended effect of this dose is not clearly delineated.

A specification is enabling if it teaches those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation. *In re Wright,* 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). It is not necessary that the specification describe how to make every variant of the claimed invention because the artisan's knowledge of the prior art and routine experimentation can fill in the gaps. *AK Steel Corp. v. Sollac and Ugine*, 344 F.3d 1234, 1244, 68 USPQ2d 1280, 1287 (Fed. Cir. 2003).

a. ONE EFFECTIVE DOSE IS APPARENT FROM THE INSTANT WRITTEN DISCLOSURE.

Because "one effective dose" is apparent in the instant written disclosure, claims 1-2 are enabled under 35 U.S.C. §112, ¶1. The *Lentinus edodes* infusion of the present application was previously known, as described in

the specification at paragraph 7. Because the infusion was already known as a healthy drink, the amount and route of administration for the composition of the present invention was already known and appreciated in the prior art. The essence of the present invention is not primarily in the preparation and general administration of the *Lentinus edodes* infusion, therefore, but emphasizes the infusion's new and unexpected effectiveness against HIV, such that administration of the *Lentinus edodes* infusion has an indication-specific medicinal effect even when given according to prior art dosages and routes of administration. In this instance, it is precisely the artisan's knowledge of the prior art, according to *AK Stell Corp. v. Sollac and Ugine*, that makes one skilled in the art realize that the effective dose is a "healthy drink" dose, or a beverage amount dose. Appellant asks the Board to recognize that such a dose amount, a beverage dose, is a typical effective dose in herbal pharmaceutical practice both in history and throughout the world today.

In a prior decision by the CCPA, the Appellant had claimed the method of using certain compounds to produce antidepressant activity. *In re Garner*, 427 F.2d 786, 166 USPQ 138 (CCPA 1970). In the specification, there was not a single specific example or embodiment by way of an illustration of how the invention was supposed to be practiced on any kind of host. *Id.* at 789. The specification did not disclose whether the contemplated "host" of the compound was human or an animal or what the proper dosage should be. *Id.* The Court of Customs and Patent Appeals held that the specification required an unreasonable amount of experimentation on the part of a person skilled in the art. *Id.*

The present facts are unlike those of Garner. The present application discloses treating a human with a healthy drink, or beverage dose, to treat HIV, and also presents positive *in vitro* test results using *Lentinus edodes* to treat human MT-4 cells infected with HIV. In other words, in distinction to Garner, not only are the host (human), route of administration (oral), and

effective dose(s) all apparent from the specification, corroborating *in vitro* evidence of the claimed medicinal indication is also provided in the specification (Table 1). Those skilled in the art thus are made aware of how to make the present mycelium infusion, how to administer it, and to whom, and what the medical benefit will be. In addition, analogous *in vivo* tests showing efficacy of the same drink in the same amount against Hep-B is also of record (Sawadaishi Declaration signed February 28, 2003).

b. THE PREPARATION OF LENTINUS EDODES FOR THE PURPOSE OF TREATING HIV INFECTIONS IS ENABLED UNDER 35 U.S.C. §112, ¶1, BY THE ORIGINALLY FILED SPECIFICATION.

The administration of *Lentinus edodes* is predictable for the purposes of practicing the claimed invention and, therefore, the present invention is enabled. All strains of *Lentinus edodes* may be used in the claimed invention, and, thus, there is no need to specify any particular *Lentinus edodes* strain. To corroborate this point, Appellant cites Expert's Declaration dated May 11, 1998, submitted and made part of the record in the parent Application No. 08/519,293. In the Declaration, the declarant attests, in paragraph 7, that "Any strain of the fungus Lentinus edodes is suitable for use in practicing the claimed invention," and "My prior Declaration [dated June 9, 1997] reported results achieved using one strain of Lentinus edodes, and that strain was is [sic] exemplary of all strains of Lentinus edodes. The anti-HIV efficacy of an extract produced according to the present invention is essentially unaffected by the strain of Lentinus edodes." (Sawadaishi Declaration May 11, 1998). Based on the foregoing, Appellant submits that the specification enables the preparation and administration of an anti-HIV *Lentinus edodes* mycelium extract of any *Lentinus edodes* strain.

c. *THE IN VITRO TESTING CORRELATES WITH THE TREATMENT OF A HUMAN AS CLAIMED WITH AN "AT LEAST ONE EFFECTIVE DOSE" AND, THEREFORE, IS ENABLED UNDER 35 U.S.C. §112, ¶1.*

The Office Action further asserts that the *in vitro* testing presented on the record fails to correlate with the treatment of a human as claimed with an "at least one effective dose".

Appellant presents an example of the treatment of human T4 lymph cells MT-4 cells infected with a particular strain of HIV (specification at paragraphs 35-51). The data of Table 1 shows the inhibition of HIV virus in MT-4 cells (specification at paragraph 49). When concentration of HIV activity inhibitor exceeds 125 μg/ml, the viability of the MT-4 cells is reduced because of the influence originating from the HIV activity inhibitor, even if the cells are not infected with HIV (specification at paragraph 51). However, in the concentrations of not higher than the above concentration, with increase of the concentration of the HIV activity inhibitor, the viability of the HIV-infected MT-4 cells increases owing to the anti-AIDS viral effect of the HIV activity inhibitor (specification at paragraph 51). In particular, when the concentration of the HIV activity inhibitor is 125 μg/ml, the viability of the HIV-infected MT-4 cells is 71.5% (specification at paragraph 51). The anti-HIV effect was measured in accordance with the method described in "Antiviral Research," Vol. 20, pp. 317-331, (1993) (specification at paragraph 42). These *in vitro* data were presented in the specification to corroborate the enablement of and to illustrate and thereby to correlate to, the effectiveness of the dosage regime and treatment method.

Correlation refers to the relationship between *in vitro* or *in vivo* animal model assays and a disclosed or a claimed method of use. MPEP 2164.02. If there is a reasonable correlation between the disclosed *in vitro* utility and an *in vivo* activity based upon the relevant evidence as a whole, a rigorous correlation is not necessary where the disclosure of pharmacological activity is reasonable based upon the probative evidence. *Cross v. Iizuka*, 753 F.2d 1040,

1050, 224 USPQ 739, 747 (Fed. Cir. 1985). In a manner analogous to the utility requirement of 35 U.S.C. § 101, a patent application is not required to show both *in vitro* and *in vivo* test results and the correlation between them, but is required only to establish a reasonable evidentiary showing supporting an asserted therapeutic effect (utility). MPEP 2107.03 The MT-4 results are in the specification for just this reason. When Appellant submitted the MT-4 results in the specification and urged such results as supportive of the asserted enablement, Appellant identified an effectiveness correlation with their enabled effective dose. The *in vitro* results in the Sawadaishi Declaration dated June 9, 1997 give further confirmation. Clinical test results corroborating and correlating anti-Hepatitis B results appear in the Sawadaishi Declaration dated February 28, 2003.

VIII. CONCLUSION

In view of the foregoing, it is respectfully submitted that the rejections of claims 1-2 under 35 U.S.C. §112, first paragraph, and the rejection of claims 1-2 under 35 U.S.C. §112, second paragraph, are improper, and that pending claims 1-2 are allowable. Appellant therefore respectfully urges the Board to reverse the Examiner's final rejections of the claims.

A check for $250.00 to cover the small entity fee for filing an Appeal Brief Under 37 C.F.R. §41.37 accompanies this Appeal Brief. The Commissioner for Patents and Trademarks is hereby authorized to charge any additional fees which may be required to Deposit Account No. 23-0650. Please refund any overpayment to Deposit Account No. 23-0650. An original and two copies of this Appeal Brief are enclosed.

Respectfully submitted,

THE WEBB LAW FIRM

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CLAIMS APPENDIX

Claim 1 (Previously presented): A method for treating a human infected with human immunodeficiency virus (HIV), comprising:

(a) inoculating *Lentinus edodes* fungus in a solid culture medium comprising 90 parts by weight of bagasse and 10 parts by weight of rice bran to yield proliferated mycelium;

(b) disentangling the solid culture medium containing the proliferated mycelium so that the amount of the bagasse of 12-in mesh is not more than 30% by weight and adding thereto 1 to 10 kg of water and 0.5 to 5 g of at least one enzyme selected from the group consisting of cellulase, protease and glucosidase based on 1 kg of the disentangled solid culture medium, while keeping the solid culture medium at 30 to 50°C, to give a bagasse-containing mixture;

(c) grinding and milling the bagasse-containing mixture so that the amount of the bagasse of 12-in mesh is not less than 70% by weight;

(d) heating the ground and milled bagasse-containing mixture to a temperature of 75 to 95°C to inactivate the enzyme;

(e) filtering the resultant mixture through a filter cloth of 50 to 120-in mesh to thereby obtain a purified, concentrated pharmaceutical *Lentinus edodes* mycelium extract; and

(f) administering orally at least one effective dose of said purified, concentrated extract to said human, wherein said extract weakens HIV activity and inhibits HIV proliferation in said human.

Claim 2 (Original): The method according to claim 1 wherein the enzyme is cellulase.

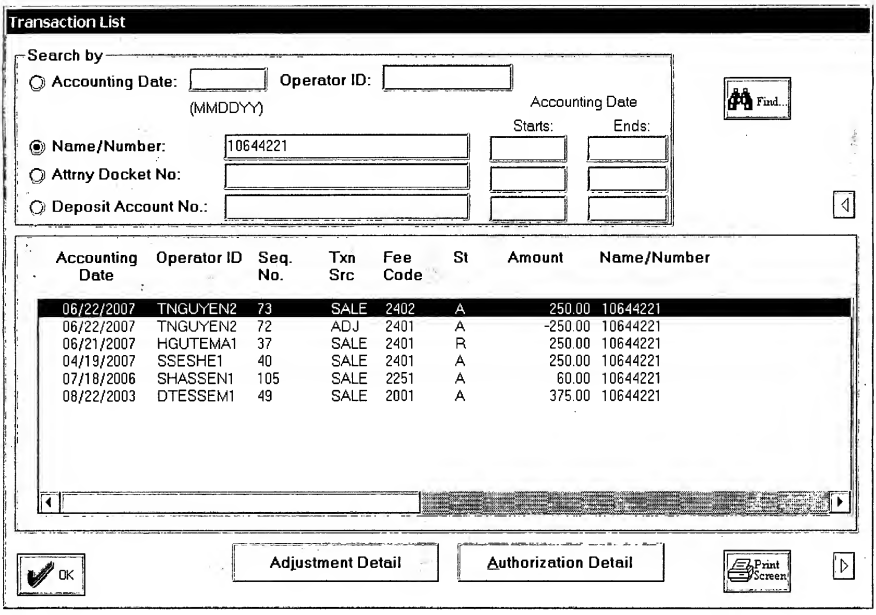
Claims 3-5 (Canceled).

EVIDENCE APPENDIX

Sawadaishi Declaration of June 9, 1997	Made of record by the Examiner during the prosecution of parent U.S. Patent Application 08/519,293
Sawadaishi Declaration of May 11, 1998	Made of record by the Examiner during the prosecution of parent U.S. Patent Application 08/519,293
Sawadaishi Declaration of February 28, 2003	Made of record by the Examiner during the prosecution of parent U.S. Patent Application 08/519,293

RELATED PROCEEDING APPENDIX

NONE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